

MD. ZUBAYER HOSSAIN PATOWARI

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AI & MACHINE LEARNING ENGINEER

Passionate AI Engineer with hands-on experience in developing innovative AI solutions across healthcare, gaming, and automation. Skilled in natural language processing, machine learning, computer vision and generative AI, with a focus on real-world problem-solving.

WORK EXPERIENCE

Chief AI Engineer

June 2025 - Present

EVU Inc.

- Leading engineering operations at EVU, a venture-backed startup with 250+ members, driving technical excellence and system reliability across multiple startups.
- Directed the architecture and deployment of advanced NLP and deep learning models using TensorFlow, PyTorch, Keras, and Hugging Face to power mission-critical chatbot systems and recommendation engines.
- Oversaw development of AI agents using LangChain, integrated RAG pipelines with vector databases like FAISS and Pinecone, and guided implementation of frameworks like NLTK and SpaCy for robust text processing infrastructure.
- Established scalable MLOps workflows for continuous training, testing, and deployment with Docker and Git-based CI/CD pipelines, ensuring system stability and performance.
- Directed a diverse engineering team across web (React.js, FastAPI), mobile (React Native), and cloud (AWS) projects, ensuring seamless collaboration, code quality, and on-time product delivery.
- Partnered with platform vendors and internal stakeholders to maintain 99.9% system uptime, enforce security protocols, and optimize integration capabilities at scale.

AI & Automation Developer

January 2024 - Jun 2025

Dhaka Post | Dhaka, Bangladesh

- Designed and developed BanglaShorts, an AI-powered micro-news platform for Dhaka Post, aimed at summarizing Bangladeshi news articles into concise 59-word stories for rapid reader engagement.
- Built a web scraping engine to extract articles from top Bangladeshi news portals and implemented NLP models (BanglaBERT, mT5) to generate human-like short summaries.
- Developed a duplicate content detection system using vector similarity techniques (Sentence Transformers + cosine similarity) to filter and merge repeated news stories.
- Automated news image processing by applying extracted media to five unique design templates using Python's Pillow and OpenCV libraries.
- Integrated with the Facebook & Instagram Graph APIs to automate social media posts, supporting dynamic image templates, captions, and scheduled publishing, removing the need for manual posting.

Lead Chatbot Developer

January 2024 - December 2024

IEM Unit, Directorate General of Family Planning (DGFP), USAID

- Designed BanglaGPT, a generative AI-powered chatbot, under USAID's Breakthrough ACTION project to assist call center agents in addressing health-related queries.
- Implemented robust NLP models tailored for Bangla to improve accessibility and effectiveness

Software Engineer

April 2021 - December 2023

Rootsuptech

- Spearheaded the development of multilingual generative LLM chatbot models, ensuring inclusivity and accuracy in diverse linguistic contexts.
- Designed and implemented ChatGPT-like conversational history and context retention for AI interactions.
- Optimized data storage pipelines for enhanced model retraining and versioning.

PROJECT

Ai Secretary – AI-Powered Business Operations Assistant for SMBs

Tech Stack: Python, FastAPI, Gemini 2.5 Pro, Green API, Flutter, Node.js, MongoDB

Key Highlights:

- Problem:** Small business owners and service professionals waste 15-20 hours weekly on administrative tasks, such as call management, message handling, quote generation, and scheduling, which prevents them from focusing on core business activities and customer relationships.
- Solution:** Built an AI secretary platform that automatically handles customer communications across calls and WhatsApp, generates personalized quotes, manages scheduling, and processes routine administrative tasks without human intervention.
- AI Innovation:** Deployed Gemini 2.5 Pro with custom prompt engineering for context-aware business communication, implemented natural language processing for intent recognition across multiple channels, and created automated workflow engines for quote generation and appointment scheduling based on business-specific parameters.
- Accessibility:** Engineered user-friendly onboarding with no-code setup, multi-language support, and affordable pricing tailored for small businesses and solo entrepreneurs across service industries.
- Impact:** Reduced administrative workload by 80% for service businesses, enabled 24/7 customer response capabilities, and freed business owners to focus on revenue-generating activities and customer relationship building.

BanglaShorts – AI-Powered Bangla News Summarization & Auto-Social Publishing Platform

Tech Stack: Python, Hugging Face Transformers, Scikit-learn, BeautifulSoup, Sentence Transformers, BanglaBERT, Flask, CRON, OpenCV, Pillow, Facebook Graph API, Instagram API

Key Highlights:

- **Problem:** Bangladeshi audiences face news fatigue due to lengthy articles and redundant coverage across media outlets.
- **Solution:** Developed an AI-driven platform that scrapes articles from major news portals and summarizes them into exactly 59 words using fine-tuned Bangla NLP models (BanglaBERT + Sentence Transformers).
- **Duplicate Filtering:** Tackled repetitive news by implementing a content similarity detector using cosine similarity and sentence embeddings.
- **Visual Content Automation:** Created a dynamic image design pipeline that overlays news images on five rotating templates using OpenCV and Pillow.
- **Automated Publishing:** Built an end-to-end social media scheduler using Facebook and Instagram APIs, automating daily news posts without human intervention.
- **Impact:** Reduced average news reading time by 70% and increased audience engagement by publishing visually optimized news tailored for social platforms.

HomeVision AI – Intelligent Interior Design & Space Transformation Platform

Tech Stack: Python, TensorFlow, Stable Diffusion, FastAPI, React, Three.js, PostgreSQL, AWS S3, Docker

Key Highlights:

- **Problem:** Homeowners and interior designers spend weeks creating mood boards and struggle to visualize design possibilities, facing uncertainty about color coordination, furniture placement, and how to utilize empty spaces effectively.
- **Solution:** Built an AI system that automatically generates personalized interior designs with intelligent color palette suggestions, furniture styling recommendations, and instant visual transformations of empty or existing spaces.
- **Compliance:** Engineered secure infrastructure with user data encryption, project versioning, and privacy-focused image processing pipelines.
- **AI Innovation:** Deployed Stable Diffusion with custom fine-tuning for interior design generation, computer vision models for room segmentation and object detection, and recommendation algorithms for context-aware furniture placement and color harmony analysis.
- **Impact:** Reduced interior design conceptualization time by 90% and enabled homeowners to visualize unlimited design variations instantly, eliminating costly design mistakes before implementation.

Sukhi-Poribar AI Chatbot – NLP-Based Health Support for Call Centers

Tech Stack: Python, TensorFlow, Flask, NLTK

- **Problem:** Health call center agents struggled to deliver fast, accurate answers to common family planning queries due to a lack of centralized knowledge access.
- **Solution:** Developed a conversational AI chatbot trained on healthcare datasets to assist call center agents in providing real-time, accurate support in Bangla.
- **Impact:** Reduced agent response time and improved the consistency of information delivered to the public under DGFP's IEM Unit and USAID's Breakthrough ACTION program.

SKILLS & COMPETENCIES

- **Programming Languages:** Python, C, C++, JavaScript, SQL
- **Web Development:** React.js, FlaskAPI, FastAPI, Node.js, HTML5, CSS3
- **AI & Machine Learning:** Natural Language Processing (NLP), Computer Vision, Generative AI, Large Language Models (LLMs), Deep Learning
- **Frameworks & Libraries:** TensorFlow, OpenCV, Scikit-learn, Pandas, NumPy, Keras, Hugging Face, Torch, Lang chain, OpenNN, PyBrain, NLTK, SpaCy, YOLO
- **App Development:** React native, Capacitor
- **Databases:** MongoDB, MySQL
- **Cloud & DevOps:** AWS, Docker, Git, GitHub
- **Tools & Platforms:** Jupyter Notebook, Unity, Google Colab, VS Code
- **Languages:** English (Fluent), Bangla (Native)

COURSES / CERTIFICATIONS

AI Engineer for Data Scientists Associate DataCamp	06/2025
Introduction to Generative AI Google	10/2024
Introduction to Large Language Models Google	11/2023
Python Essentials 1&2 Cisco	10/2024